

### ABSTRACT OF THE DISCLOSURE

A machine has a tool head which rotates on a C-axis (about the Z-axis) and an A-axis (about the X-axis). A tool length vector is multiplied by a matrix whereby a misalignment component  $\delta s_H$  and the incline error ( $\alpha_{s-H}$ ,  $\beta_{s-H}$ ,  $\gamma_{s-H}$ ) of a spindle are corrected so that the tool length vector due to the misalignment of the spindle is obtained. The vector thus obtained is further multiplied by a transformation matrix that includes a rotation instruction  $a$  for the A-axis and misalignments of the A-axis  $\delta a_H$  ( $\alpha_{a-H}$ ,  $\beta_{a-H}$ ,  $\gamma_{a-H}$ ) to correct the misalignment of the A-axis so that the tool length vector as found when the A-axis has rotated by an equivalent of instruction  $a$  is determined. The vector thus determined is further multiplied by a transformation matrix that includes a rotation instruction  $c$  for the C-axis and misalignments of the C-axis  $\delta ac_H$  ( $\alpha_{c-H}$ ,  $\beta_{c-H}$ ,  $\gamma_{c-H}$ ) to correct the misalignment of the C-axis, so that a tool length vector as found when the C-axis has rotated by an equivalent of instruction  $c$  is determined. The tool length vector thus determined is added to the vector of positional instruction values (x, y, z) and a workpiece origin offset vector  $M_{wo-H}$ , so that the machine position  $V_{m-H}'$  is obtained.